

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-8 and 13 are currently pending in the application. Claims 1-8 and 13 are amended; and Claims 9-12, 14 and 15 are canceled by the present amendment. Claims 1-8 and 13 are amended only to correct minor informalities and cosmetic matters of form. Thus, no new matter is added.

In the outstanding Office Action, Figs. 1-3, the specification and Claims 1-8 and 13 were objected to because of minor informalities; Claims 3-8 were rejected under 35 U.S.C. § 112, first paragraph; Claims 1-8 and 13 were rejected under 35 U.S.C. § 112, second paragraph; and Claims 1-8 and 13 were rejected under 35 U.S.C. § 103(a) as unpatentable over Crawford et al. (U.S. Pub. 2003/0002471, hereinafter “Crawford”) in view of Fig. 2 of the instant application.

In response to the objection to Figs. 1-3, the specification, and Claims 1-8 and 13 because of minor informalities, the drawings, specification and claims are amended to address the informalities noted in the outstanding Office Action. Accordingly, Applicants respectfully request that the objection to Figs. 1-3, the specification and Claims 1-8 and 13 be withdrawn.

Claims 3-8 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Applicants respectfully traverse this rejection.

Dependent Claim 3 recites that the “power controlling section is configured to select a receiving antenna for a signal reception signal based on said sub-carrier selection information, and shut off power supplied to at least part of other connected circuits of said carrier restoring section.” Support for this claimed feature can be found at least at p. 22, l. 20-p. 23, l. 23 and Fig. 4 of the originally filed application. More specifically, this cited

portion of the application discloses that the power controlling section repeatedly selects an antenna element for each received packet based on sub-carrier selection information output from the sub-carrier selecting section. The power controlling section is then able to shut off power supplied to at least a part of other connected circuits of said carrier restoring section via the enable controlling circuit. Therefore, Applicants respectfully submit that each of Claims 3 and 5-6 contain subject matter which is described in the specification in such a way to enable one skilled in the art to which it pertains to make and/or use the invention.

Accordingly, Applicants respectfully request that the rejection of Claims 3-8 under 35 U.S.C. § 112, for paragraph, be withdrawn.

Claims 1-8 and 13 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite. In response to this rejection, Claims 1, 7, 8 and 13 are amended to correct the informalities noted in the outstanding Office Action.

Accordingly, Applicants respectfully request that the rejection of Claims 1-8 and 13 under 35 U.S.C. § 112, second paragraph be withdrawn.

Claims 1-8 and 13 were rejected under 35 U.S.C. § 103 as unpatentable over Crawford in view of Fig. 2 of the instant application. Applicants respectfully traverse this rejection as independent Claims 1 and 13 recite novel features clearly not taught or rendered obvious by the applied references.

Amended independent Claim 1 is directed to an orthogonal frequency division multiplexing (OFDM) receiving apparatus for selectively using a plurality of OFDM reception signals. The OFDM receiving apparatus includes a plurality of receiving antennas and a carrier restoring section provided for each of the plurality of receiving antennas. Each of the carrier restoring sections include a radio frequency and intermediate frequency section configured to down-convert a reception signal from a radio frequency band to a base band signal, a digital converter configured to convert an analog base band signal received from the

radio frequency and intermediate frequency section into a digital signal, and a Fourier-transform section configured to Fourier-transform the digital signal converted by the digital convert and extract a carrier in frequency domain from the Fourier-transform digital signal.

Amended independent Claim 1 further recites that the OFDM receiving apparatus comprises:

a sub-carrier selecting section configured to compare powers of output signals from said each carrier restoring section provided for each sub-carrier, and selectively combine the powers of said output signals for each sub-carrier; and
a power controlling section configured to ***control power supplied to said each carrier restoring section***, based on sub-carrier selection information from said sub-carrier selecting section.

Independent Claim 13, while directed to an alternative embodiment, recites substantially similar features. Accordingly, the remarks and arguments presented below are applicable to each of independent Claims 1 and 13.

Turning to the applied reference Crawford describes a scheme for estimating the carrier-to-noise-plus-interference ratio (CNIR) for OFDM waveforms that makes use of a physical waveform frame structure including a diversity selection portion.¹ A first set of measurements are taken from an antenna branch on the non-zero OFDM frequency bins, and a second set of measurements are taken from the antenna branch on the zero OFDM frequency bins, and an estimate for CNIR for at least one of the non-zero OFDM frequency bins and at least one of the zero OFDM frequency bins of the antenna branch is then computed using the first and second sets of measurements.

Crawford, however, fails to teach or suggest “a power controlling section configured to ***control power supplied to said each carrier restoring section***, based on sub-carrier selection information from said sub-carrier selecting section,” as recited in amended independent Claim 1. In rejecting the claimed features directed to the “carrier restoring section” the outstanding Office Action cites the RF receivers 104, 106 of Crawford. Then, in

¹ Crawford, Abstract.

rejecting the claimed features directed to the “power controlling section”, the outstanding Office Action relies on Figs. 7, 18A and 18B, and more specifically, the diversity antenna branch selection module 550, sub-carrier selection diversity module 602 and diversity antenna selection module 600 described in Crawford. However, none of the diversity antenna branch selection module 550, sub-carrier selection diversity module 602 or diversity antenna selection module 600 in Crawford control the power supplied to the RF receivers 104, 106.

Instead, as depicted in Figs. 17 and 18A, for example, an output from both of the RF receivers 104, 106 are input to the diversity antenna branch selection module 550 and sub-carrier selection diversity module 602. Based on the processing of these components a diversity antenna selection decision module 642 generates an output signal to indicate the selected antenna pair decision or subsequent OFDM bursts received.² Thus, Crawford describes that the output of the diversity antenna selection modules 550, 600 may be used to select a specific pair of antennas through which to receive signals. However, during operation, a power supplied to each of the RF receiver sections 104, 106 of Crawford is not controlled based on any output sub-carrier selection information. More specifically, Crawford fails to teach or suggest controlling power supplied to each of the RF receivers 104, 106 based on sub-carrier selection information output from the sub-carrier selection diversity module 602 or the diversity antenna selection modules 550, 600.

Further, Fig. 2 of the instant application also fails to teach or suggest that the power supplied to any of the carrier restoring sections corresponding to any of the antennas is controlled based on sub-carrier selection information.

Therefore, Crawford, neither alone, nor in combination with Fig. 2 of the instant application, teach or suggest an OFDM receiving apparatus, as claimed, comprising “a power

² Id., paragraph [0170].

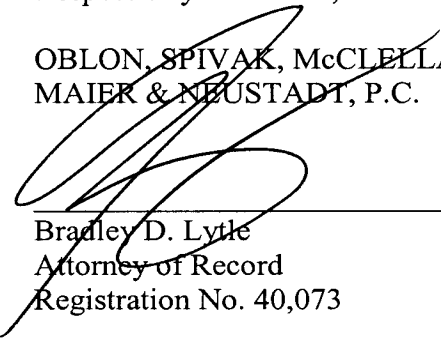
controlling section configured to *control power supplied to said each carrier restoring section, based on sub-carrier selection information from said sub-carrier selecting section*” as recited in amended independent Claim 1.

Accordingly, Applicants respectfully request that the rejection of Claim 1 (and Claims 2-8 which depend therefrom) under 35 U.S.C. § 103 be withdrawn. For substantially similar reasons, it is also submitted that amended independent Claim 13 patentably defines over Crawford and/or Fig. 2 of the instant application.

Consequently, in view of the present amendment and in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 1-8 and 13 is patentably distinguishing over the applied references. The present application is therefore believed to be in condition for formal allowance and an early and favorable reconsideration of the application is therefore requested.

Respectfully submitted,

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